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Maria Teschler-Nicola (Ed.)

**Early Modern Humans at
the Moravian Gate**

The Mladeč Caves and their Remains

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Dedicated to

Jan Jelínek
(6.2.1926–3.10.2004)

and

Emil Breitingger
(15.10.1904–1.5.2004)

PREFACE

The early Upper Palaeolithic human fossils from the Mladeč (Lautsch) cave (German *Fürst Johann's Höhle*) are among the most valuable inventories of the Vienna's Natural History Museum (Naturhistorisches Museum Wien). They are closely associated with the early history of the museum, the Anthropological Department in particular, and remain at the centre of scientific discussion on the biological and cultural evolution of early modern humans.

The history of the retrieval and preservation of these finds is marked by circumstances and events that are both fortunate and tragical. Geologist Ferdinand von Hochstetter and his assistant Josef Szombathy played a key role in the discovery. Very successful in a variety of positions, and acting for a number of institutions, Hochstetter also played a specific role in establishing the "science of man" in Vienna. President of the Geological Society and First Director of the newly created imperial-royal Court Museum, he founded the Anthropological-Ethnographical Department and became its Director. The fact that he was also a Real Member of the Academy of Sciences and chairman of the *Prehistorical Commission of the imperial Academy of Sciences*, founded in 1878, was also of particular importance in the context of early speleological research. This Commission was entrusted the task of initiating and promoting speleological investigations and "palaeo-ethnographical" studies and excavations on Austrian territory and of preventing the "unscientific exploitation of major sites for private purposes". A number of caves in the Moravian karst, whose wealth of diluvial bones had long been known from historical sources and which were exposed to massive pilferage for industrial purposes in the middle of the 19th century, also faced particular danger. From 1879, the Viennese scientists, who were familiar with contemporary geological and topographical literature on the margraviate of Moravia, first concentrated on Výpustek and other minor caves situated on territory belonging to John II, the Prince of Liechtenstein. Incidentally, the Prehistorical Commission of the Academy of Sciences also sponsored Maška's excavations in the Šipka cave, and Hochstetter visited the cave and its scarce finds in July 1879. From his personal contacts with the Liechtenstein administrators, Hochstetter was well aware of the potential inherent in that region. In any event, in the summers of 1881 and 1882, Josef Szombathy complied with a request to include the Mladeč Cave in the study. Despite successful campaigns, culminating in sensational finds, the Viennese scientists did not continue excavations in the Mladeč Cave. As Szombathy's central concern – proving the contemporaneity of "man and the reindeer" – had been answered by the results of the 1882 excavations, the focus was shifted to other caves in the Moravian karst.

It is due to some fortunate circumstances that practically all the Mladeč finds donated to the Anthropological-Ethnographical Department of the imperial-royal Court Museum of Natural History survived two World Wars without suffering any damage; on the other hand, those recovered a few years later – most of which were preserved at the Moravian Museum Brno (Moravské zemské muzeum of Brno) – were unfortunately destroyed during their attempted removal at the end of World War II, except for a male calvarium and a few other minor finds. As a result, these finds were lost for science forever.

Josef Szombathy first presented and interpreted the finds more than forty years after being recovered. Although some aspects were singled out for re-interpretation in the eighties and nineties of the past century, that presentation continues to be the most comprehensive one. But again it was to take almost (another) fifty years until this important assemblage of finds was to come into the focus of scientific debate again. It was realised that this assemblage was charac-

terised by great variability and distinctive sexual dimorphism and that there was evidence of a Neanderthal heritage for the early Upper Paleolithic. Though in the seventies and eighties, Jan Jelinek and American palaeo-anthropologists Milford Wolpoff, David Frayer and others reinvestigated the human fossils stored at the Naturhistorisches Museum Wien and at the Brno Moravské zemské muzeum, the studies – to be conducted in association with the Museum of Brno – for various reasons were never presented as planned. In the late nineties, renewed efforts were made, now from Vienna, to arrange for the printing of the finalised principal manuscripts at the Museum of Natural History in Vienna. But despite numerous attempts at its timely completion, and against all expectations, the project progressed rather slowly and eventually took a completely different course: It seems likely that by including a number of additional topical issues, the project gained a momentum of its own that some of the authors considered rather difficult to comprehend.

The book was to be enhanced by a few additions concerning the interpretation of the cave and its use that had hitherto not been dealt with in a satisfactory way or not been dealt with at all, including an analysis of the faunal remains stored at various museums and the taphonomic changes of human skeletal remains. Another intention was to subject historical perspectives to critical review, such as Szombathy's diary and other written documentary sources capable of shedding light on the cultural historical context and the evolution of specific scientific issues and museum developments. In parallel to the above, a pilot study conducted by collaborators of the Max Planck Institute for Evolutionary Anthropology had succeeded in providing positive evidence of sufficiently well-preserved organic components in some randomly selected human and animal skeletal remains from Mladeč. It seemed that absolute dating, which is crucial for the interpretation of the finds and had hitherto invariably failed, became feasible for the first time – even though concurrently, applying such invasive methods of study would confront us with specific issues of curatorial responsibility. Finally, these processes and considerations ultimately prompted us to redesign the content of our initial concept and to extend our timeframe for the finalisation of this monograph.

Nevertheless, our original intention in writing this volume was unaltered: This presentation still aims to introduce to the discussion a concise set of new data on a find that must be considered “old” in the historical sense; in so doing, to convey different views and interpretations and to open up our minds to diverging opinions, thereby contributing, *inter alia*, to a discussion of the models developed to describe the origin of anatomically modern human beings.

The printing of this volume has been made possible by generous funding from the Natural History Museum, in particular the “Friederike und Oskar Ermann Fonds”. Therefore I am, first of all, particularly indebted to professor Bernhard Lötsch, the director-general of the Museum, and to Herbert Kritscher, his deputy.

I also thank the Springer publishing house in Vienna, in particular Messrs. Raimund Petri-Wider and Wolfgang Dollhäubl, for their friendly collaboration, their support in conceptual issues and their comprehension and assistance in the graphic design.

I also wish to express my gratitude to all the collaborators of the Anthropological Department, who I could rely on for all the technical, taxidermical and photographic work; in particular to Mr. Wolfgang Reichmann, who entered all objects in a photographic documentation and reproduced a number of copies. He was also in charge of the photoshop editing and layout of the plates, provided competent support to authors and editors, and is co-responsible for the high-quality photography of this volume; as well as to Mr. Ronald Mühl, who did all the sampling, made the histological thin sections and recorded many findings.

I am particularly grateful to Mrs. Michaela Zwölfer (LanguageWorks) for her precision in translating some of the texts and her many linguistic suggestions and friendly support; as well as to

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I wish to extend particular acknowledgement to Mrs. Bettina Voglsinger, my assistant, who accompanied the making of this book as it evolved through its different stages over the past two years. I owe my thanks to her for all her assistance relating to organisational tasks, her many rounds of meticulous proof-reading, her painstaking verification of sources and her invariably ready physical and mental “emergency programme for busy coordinators and authors”. This service was also extended to my family, who have been kind enough to tolerate my style of work for many years.

Vienna, May 2006

Maria Teschler-Nicola

FOREWORD

Ever since its initial excavation in the early 1880s by Josef Szombathy, the Mladeč cave has played a pivotal role in discussions of the prehistory of central Europe. Perhaps the most significant early contribution was Szombathy's presentation in Paris in 1900, at the Twelfth International Congress of Anthropology and Archaeology, of the first of many *Homo sapiens* skulls eventually recovered from the site. This specimen, Szombathy argued, was unambiguously associated not only with blade tools, an animal-bone dagger, and perforated teeth of beaver and reindeer, but also with the bones of ancient animals. This was among the few occasions up to that point on which human skeletal remains had ever been claimed to be as old as the fossilized remains of animals that were agreed to be extinct. For, prior to Szombathy's presentation of Mladeč to the anthropological community, the history of human paleontology records little more than Fuhlrott's largely unsuccessful argument in 1859 for the great antiquity of the Feldhofer Grotto Neanderthal remains, Lartet and Christy's association during the 1860s of the Cro-Magnon remains with extinct mammals, and Fraipont and Lohest's representation in the late 1880s of the Spy Neanderthals as truly ancient humans. In light of this scant history, it is hardly surprising that Szombathy initially faced some scepticism in making the case for the Pleistocene age of the Mladeč remains. The task was further complicated by the fact that the first and second human specimens found were not only fragmentary – a condition Szombathy rather implausibly attributed to cannibalism or some other form of human activity – but had been recovered very close to the surface of the cave deposits.

Eventually Szombathy's, Janda's and subsequent excavations of the Mladeč Cave yielded a treasure trove of specimens – faunal, artifactual, and human. But while the early excavations at Mladeč were apparently quite meticulously conducted for their period, they were rather poorly recorded and published. The principal result of this unfortunate circumstance is that, while the singular significance of the Mladeč fossils is widely acknowledged, they have figured principally as elements in broader analyses rather than as subjects of study in their own right. This volume is a sorely-needed and highly successful attempt to rectify this situation. It is well known that many of the jewels of the Mladeč human collection were tragically destroyed in 1945, in a paleoanthropological disaster exceeded only by the loss of the Peking Man collection four years earlier, also in connection with the events of the Second World War. But what many readers of this volume may be surprised to learn is that almost four dozen original human specimens survive. These fossils are inventoried here, along with those lost, by Wolpoff and colleagues, who also provide a splendid series of photographic plates. The specimens consist of variably preserved adult and immature craniodental and postcranial elements, of both sexes, that provide a wealth of morphological information. All in all, the Mladeč human fossil collection still offers palaeoanthropologists and prehistorians a rich resource that presents a unique insight into the nature of Aurignacian human populations in Central Europe.

Given the rather fragmentary nature of the information on the site and its excavation contained in Szombathy's diary and correspondence, it is gratifying that many chapters in this volume strive as far as possible to fill in the blanks. Antl-Weiser begins with a review of Szombathy's notes, and Svoboda continues the "sleuthing" with a computer reconstruction of the cave, including the section known as the "Dome of the Dead" from which the human remains came. Svoboda concludes that a vertical chimney had afforded a possible but difficult entrance into the cave from the outside, and that – *contra* Oliva's interpretation later in the volume – the site could not easily have been a ritual area that had been regularly visited by humans. Indeed, Svoboda favours the notion that the human remains, like those of the other animals found at Mladeč, fell into the cave through an opening or openings to the surface, although he leaves open the question of whether the presence of the human

remains in the cave was somehow related to human activity of some kind outside. In contrast, on the basis of his reanalysis of Szombathy's notes, Oliva concludes that although Mladeč was clearly not a habitation site, the locality was visited occasionally by humans, most likely in ritual contexts. Because of the reported presence of hearths, and because in one instance human remains and artifacts were found together in a niche in the northwestern wall of the cave, Oliva rejects the notion that the human remains were introduced into the cave via a chimney connecting it to the surface. Rather, he hypothesizes the existence during the Upper Paleolithic of a horizontal entrance to the cave that would have permitted access by humans.

Clearly, the issue of how the human remains came to be in the Mladeč deposits, and how the site may or may not have been used by *Homo sapiens* during the Aurignacian, is not an open-and-shut case. Teschler-Nicola makes this clear in her taphonomic study, from which she concludes that the "charcoal" that suggested domesticated fire was more likely deposits of manganese. Further, in her view the fragmentary state of the human bones may well reflect carnivore or scavenger activity – which she observes may not preclude their introduction into the cave via a vertical chimney. Teschler-Nicola's interpretation gains support from Pacher's study of site formation based on analysis of the faunal remains. This analysis confirms that the Late Pleistocene faunal assemblage most likely consists of individuals that fell into a natural trap. Overall the Mladeč thanatocoenose, which is dominated by bovids followed by reindeer, horse and wolf, is markedly different from those found in penecontemporaneous human occupation sites in the region. Like the other mammal bones, the human remains appear to be related to the debris cone below the chimney, and none of the animal bones shows any sign of human activity, although there is some minor evidence of gnawing by hyenas.

Among the many significant outcomes of this collective endeavor is Wild et al.'s ^{14}C dating of samples derived from animal and human skeletal remains. While carbonate samples yielded a minimum age of 35–34 ^{14}C kyr BP, analysis of the animal bones produced a wide range, from ~8.5 to ~42.5 ^{14}C kyr BP (which might reflect the irregular depositional history of the site). Direct dating of four human samples resulted in dates ranging from ca. 32 to 30.5 ^{14}C kyr BP (uncalibrated), while two others (possibly contaminated) were dated as 3 and 4 kyr younger. The preponderant age of the Mladeč human specimens puts them solidly within the frame of the middle to late Aurignacian of Central Europe, and makes them the most complete early human remains from the region. In the region only the Romanian site of Peștera cu Oase appears to contain older *Homo sapiens* fossils, at about 35 kyr.

Following Wolpoff et al.'s inventory come two substantial chapters on the human remains. The first of these deals with the Mladeč craniodental specimens (including ones that were destroyed) that are considered by Frayer et al. to be male, and the second focuses on those identified by Wolpoff et al. as female. The first of these chapters also provides a detailed summary of the history of the discovery of the human remains, and of their archaeological context. In both contributions the authors provide information on the morphology of individual specimens, which makes these chapters useful even to those who do not agree with the controversial Multiregional model within which these authors situate the Mladeč specimens. This is particularly important since the Mladeč *Homo sapiens* have frequently been cited – in our view, erroneously – as retaining certain characters, particularly of the brow and cranial rear, that indicate some kind of contact or affinity with the Neanderthals who had earlier occupied Central Europe. In this regard, we note that although Frayer et al. identify in the nasal cavity of Mladeč 8 what they believe is the base of a medial projection, a feature we have described as a Neanderthal apomorphy, the structure in question actually appears to be part of the conchal crest, a feature that is primitively retained in *Homo sapiens*. Clearly, the debate over continuity vs replacement in Central Europe is set to continue, with the Mladeč hominids as pivotal participants; and these chapters will endure as indispensable documentation of these unique fossils.

Against this basic background, this volume then subjects the Mladeč crania to closer scrutiny than simple traditional description and measurement of their outer surfaces. Prossinger and Teschler-Nicola use analysis of CT scans of the Mladeč 1 cranium to “rid” this fragile and unique specimen of foreign material, and to reveal for the first time its true preserved bony morphology both inside and out. This approach will certainly provoke new avenues of research on this and other specimens. Through a different use of computer technology, Minugh-Purvis et al. reconstruct the general shape of the braincase of the Mladeč 3 infant. Although the interpretation of this reconstruction is steeped in a “non-evo-devo” paradigm that envisions an amalgam of Neanderthal and modern human gene pools, this contribution contains valuable information allowing comparison of this specimen with modern and ancient juveniles of *Homo sapiens* and other hominid taxa. While Minugh-Purvis and colleagues emphasize continuity, a few chapters later in the volume Weber et al. morphometrically compare the external geometry of skull shape between the three better preserved Mladeč specimens, “anatomically modern humans” and Neanderthals, and conclude that the Mladeč fossils group firmly with the modern sample.

Turning to the postcranial skeleton, Trinkaus et al. present an overview comparable in morphological and metric detail to that provided for the crania. Although the postcranial remains representing juveniles, adolescents, and adults were not found (or at least kept) associated when excavated, Trinkaus et al. make strong cases for assigning bones of similar developmental status or robusticity to particular individuals. They conclude that in general the Mladeč humans were relatively robust and in many ways morphologically similar to Upper Paleolithic humans from other sites, while leaving open the question of whether their postcranial reflects “Neanderthal ancestry” or merely Upper Paleolithic behavioral patterns.

The final three chapters in this volume deal, successively, with trauma and disease, mtDNA, and strontium isotope ratios in the Mladeč hominid sample. In the first of them, Teschler-Nicola et al. use CT scanning and radiography, in addition to surficial visual assessment, to reveal a array of ailments or traumatic events that affected the Mladeč humans. These include a malformed cochlear-vestibular region and extruded 7th cranial nerve, healed traumatic lesions, blunt traumatic and other depressions of the skull, and even a small osteoma. The chapter by Serre et al. on mtDNA deals mainly with the more general question of whether “Neanderthal-like mtDNA sequences” can be identified in early modern human remains from Europe. The authors conclude that no Neanderthal-like mtDNA sequences are present in the latter, and specifically find no support for Neanderthal elements in the two Mladeč samples from which mtDNA fragments were retrieved. Finally, Prohaska et al. used noninvasive techniques to provide preliminary information on $^{87}\text{S}/^{86}\text{S}$ isotope ratios in various Mladeč specimens in the hope of providing insight into possible migratory patterns, since strontium ratios are locally specific. Although the authors are very tentative about their results, it is interesting that the Sr isotope ratio pattern in the dental enamel of Mladeč 1 and Mladeč 2 suggests that these individuals were not local but had instead migrated to this region of Moravia. This in and of itself raises a host of questions and should whet one’s intellectual appetite.

This volume successfully represents a broad collaboration that will serve as a model for future similar endeavors. It is made all the more exciting by housing a substantial diversity of opinion within its covers, a diversity that reflects the central position of the Mladeč human fossils in a variety of ongoing paleoanthropological debates. The editor and authors are to be congratulated for rising so effectively to the challenge of definitively monographing this highly significant but until now woefully under-documented group of early European modern humans.

April 2006

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